COMMENTS ON FCC DOCKET NO. 16-191 TAC NOISE FLOOR TECHNICAL INQUIRY
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About 10 years ago I began noticing an increase in background noise and radio frequency interference (RFI) on the LW, MW (AM broadcast) and SW bands. Two years ago the noise became so severe on HF that I decided to investigate. Based on my observations I found a number of sources contributing to the overall background noise at my urban home. I grouped these noise sources into three categories:

A. Noise Generated By Electronic Devices Inside My Home
    1. Light dimmers
    2. Computers and computer monitors
    3. Wireless router
    4. Wireless garage door opener
    5. Wireless ceiling fan controllers
    6. Plug-in 120V switching type power supplies
    7. LCD TV
    8. Compact fluorescent lamps with screw-in type base
B. Noise Generated By Nearby Electrical Transmission and/or Distribution Lines
    1. Arcing insulators
    2. Faulty capacitor bank
C. Interference Caused By Intermodulation

Using a directional antenna and noise meter, I also identified noise coming from my neighbor's house located approximately 25 feet away. I have not discussed this matter with my neighbor (yet).

Using the same and antenna and noise meter, I determined that an overhead 69 kV transmission line located nearby was the source of severe arcing RFI. I notified the electric utility company and provided them with a copy of my field notes and noise measurements. The utility company verified my findings and has subsequently replaced the insulators along this line and isolated a faulty capacitor bank that together corrected the arcing noise problem.

In addition, I have observed another form of broadband noise on HF that sounds like "intermod". From the noise I can sometimes discern images of speech patterns but I have not been able to correlate the patterns with any local AM broadcast station or strong SW stations. I am beginning to suspect a commercial cell tower and a City-owned antenna array that are located about 1,000 feet away. More time and effort needs to be done to verify (or eliminate) these as noise sources.

With the arcing problems corrected by the utility, the background noise level on HF (up to approximately 10 MHz) at my home decreased from approximately "S9+" to "S5-S7" (see notes

below). This is now the baseline noise level at my home all hours of the day and night, 7 days a week.

This level of background noise is objectionable to me and has greatly limited my ability to receive weak signals on HF including amateur radio, international short wave broadcasts and NIST time signals for example. I acknowledge that my use of the HF spectrum is for sport; however I feel that this problem warrants in-depth study before it impacts military, commercial, and other civilian users. I commend the Commission for initiating the TAC Noise Floor Technical Inquiry.

Notes:

Constant noise levels of "S5 to S7" measured at my home using a general coverage radio receiver in AM mode on HF with the following conditions:

1. All AC electrical power in my house turned off (main breaker opened).
2. Radio receiver operating on battery.
3. Ground mounted vertically polarized HF antenna located approximately 60' from my house with greater distances to neighboring homes.
4. Earth's geomagnetic field quiet (signal noise level of S0 to S1).
5. Local weather conditions quiet.

END OF COMMENTS